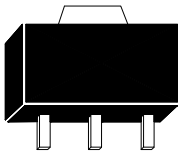
N-CHANNEL MOSFET

Features:

- Low on-resistance
- High speed switching
- Low-voltage drive
- Easily designed drive circuits
- Pb-free lead plating package

SOT-89

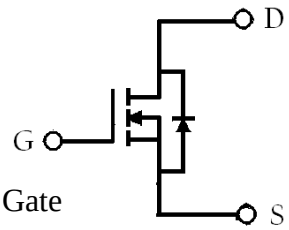


G D S

Description :

The KWN2328M3 is a N-channel enhancement-mode MOSFET.

BV_{DSS}	**100V**
I_D@V_{GS}=10V, T_A=25°C	**3A**
R_{DSON}@V_{GS}=10V, I_D=3A	**130mΩ (typ)**
R_{DSON}@V_{GS}=4.5V, I_D=3A	**136mΩ (typ)**



G：Gate
S：Source
D：Drain

Ordering Information

Device	Package	Shipping
KWN2328M3	SOT-89 (Pb-free lead plating and halogen-free package)	1000 pcs / tape & reel

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	±20	
Continuous Drain Current @V_{GS}=10V, T_A=25°C	I_D	3	A
Continuous Drain Current @V_{GS}=10V, T_A=100°C		1.9	
Pulsed Drain Current	I_{DM}	12 *1	
Total Power Dissipation	P_D	2.1 *2	W
Operating Junction and Storage Temperature Range	Tj; Tstg	-55~+150	°C

Note : *1. Pulse Width ≤ 300μs, Duty cycle ≤2%
*2. When the device is surface mounted on 1 in² copper pad of FR-4 board with 2 oz. copper.

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient	Rth,ja	60	°C/W

Note : Surface mounted on 1 in² copper pad of FR-4 board.

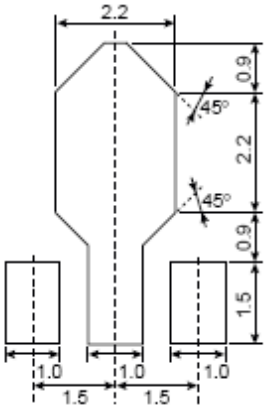
Electrical Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}*	100	-	-	V	V_{GS}=0V, I_D=10μA
$V_{GS(th)}$	1	1.8	2.5		V_{DS}=V_{GS}, I_D=250μA
I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0V
I_{DSS}	-	-	1	μA	V_{DS}=100V, V_{GS}=0V
$R_{DS(ON)}$*	-	130	150	mΩ	I_D=3A, V_{GS}=10V
	-	136	160		I_D=3A, V_{GS}=4.5V
G_{FS}	-	5	-	S	V_{DS}=10V, I_D=3A
Dynamic					
C_{iss}	-	1188	-	pF	V_{DS}=25V, V_{GS}=0V, f=1MHz
C_{oss}	-	30	-		
C_{rss}	-	17	-		
$td_{(ON)}$	-	7	-	ns	V_{DS}=50V, I_D=3A, V_{GS}=10V, R_{GEN}=6Ω
tr	-	3.2	-		
$td_{(OFF)}$	-	29	-		
tf	-	5	-		
Qg	-	18.4	-	nC	V_{DS}=50V, I_D=3A, V_{GS}=10V
Qgs	-	4	-		
Qgd	-	7.5	-		
Source-Drain Diode					
*I_S	-	-	3	A	
*I_{SM}	-	-	12		

*V_{SD}	-	-	1.2	V	V_{GS}=0V, I_S=3A
*trr	-	45	-	ns	I_F=3A, dI_F/dt=100A/μs
*Qrr	-	70	-	nC	

*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

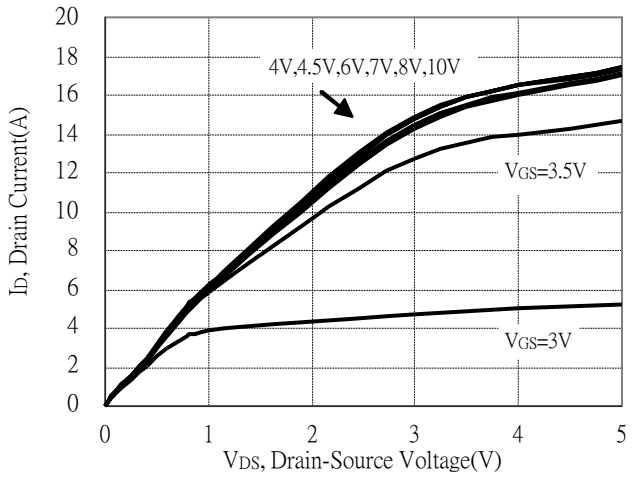
Recommended soldering footprint



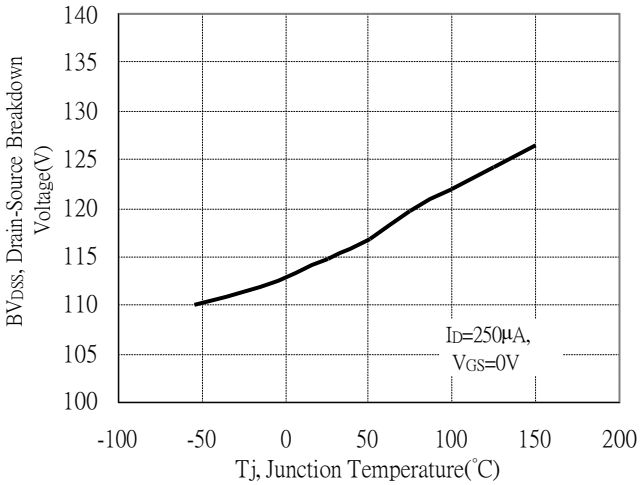
unit : mm

Typical Characteristics

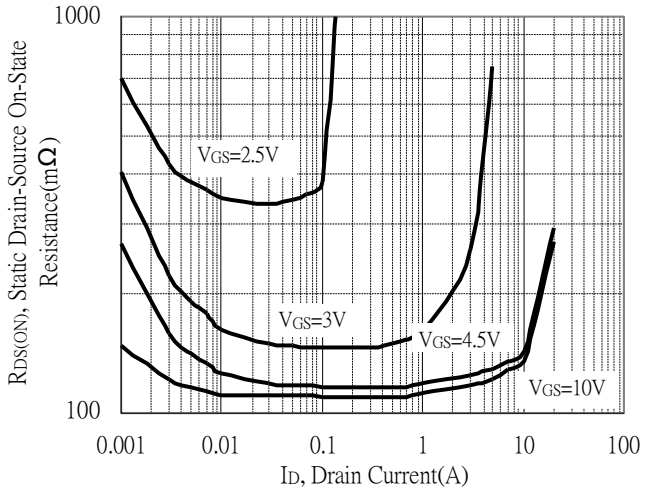
Typical Output Characteristics



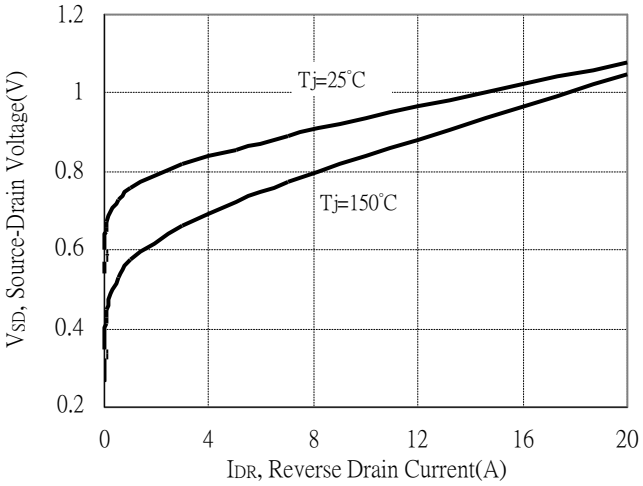
Brekdown Voltage vs Ambient Temperature



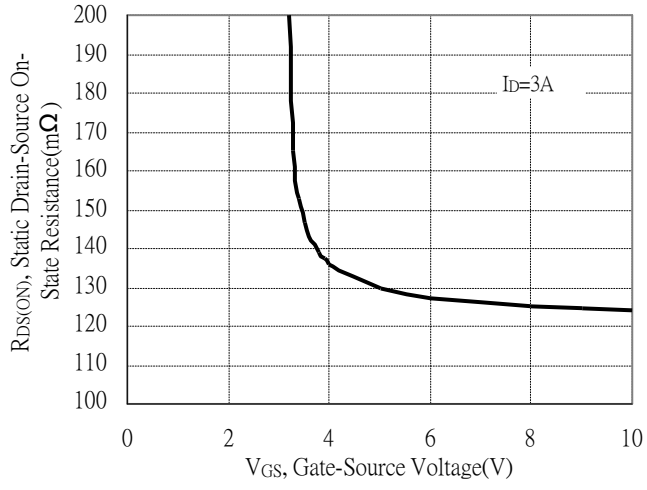
Static Drain-Source On-State resistance vs Drain Current



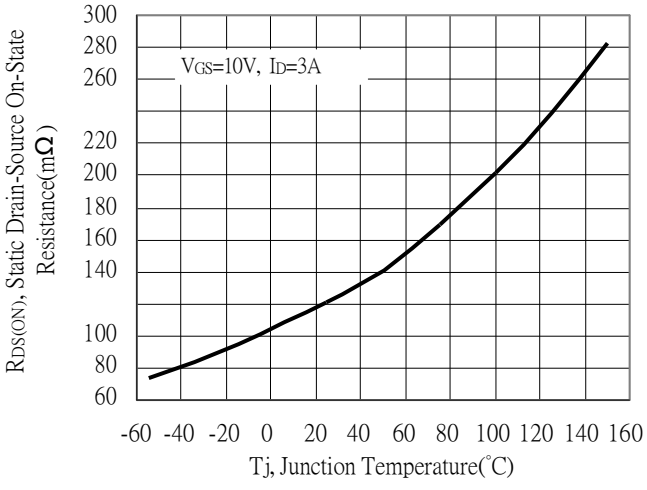
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

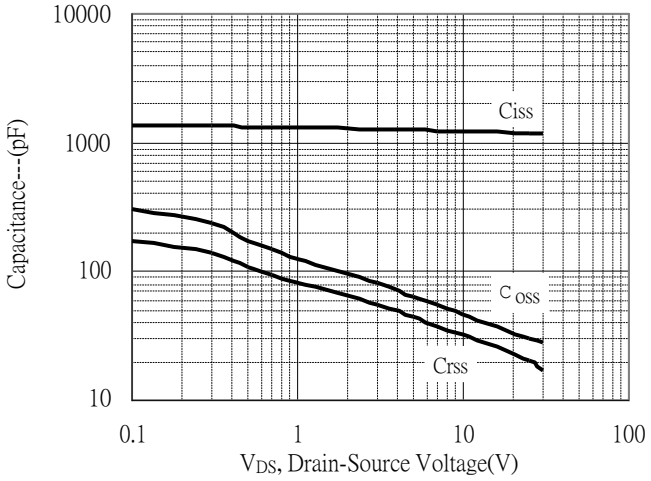


Drain-Source On-State Resistance vs Junction Tempearture

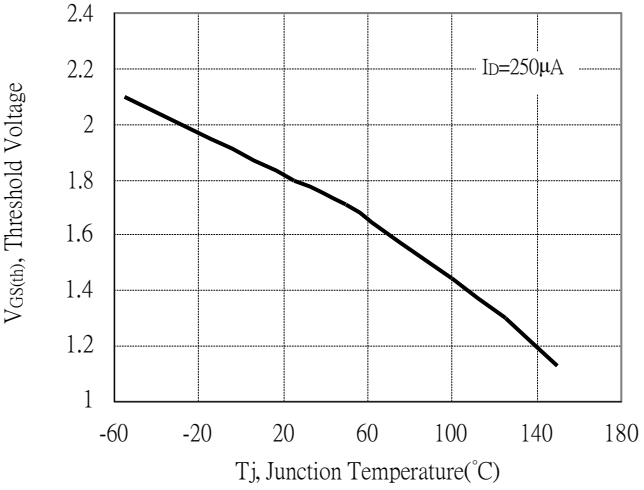


Typical Characteristics(Cont.)

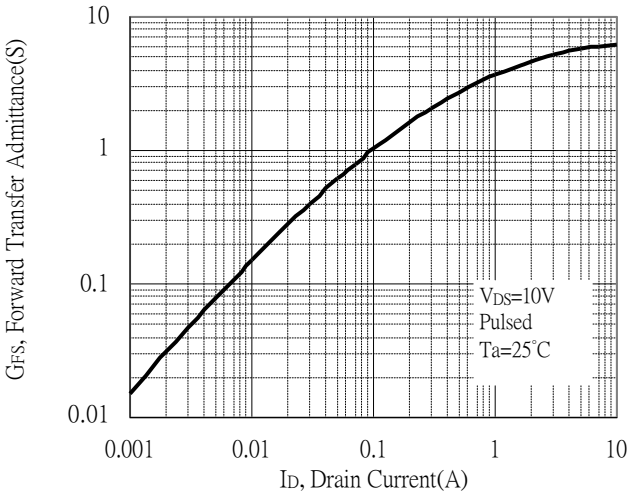
Capacitance vs Drain-to-Source Voltage



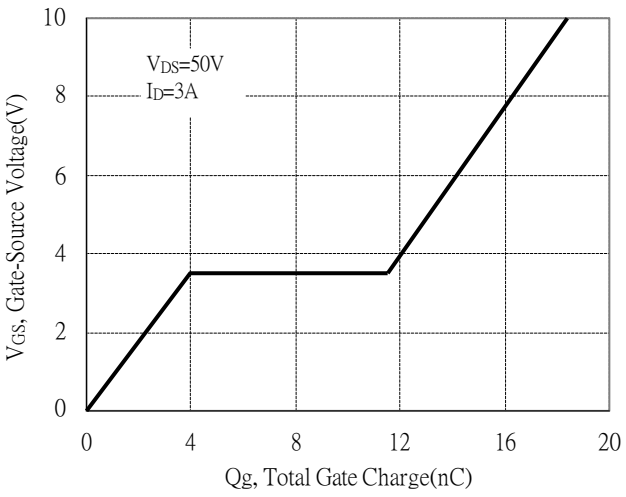
Threshold Voltage vs Junction Tempearture



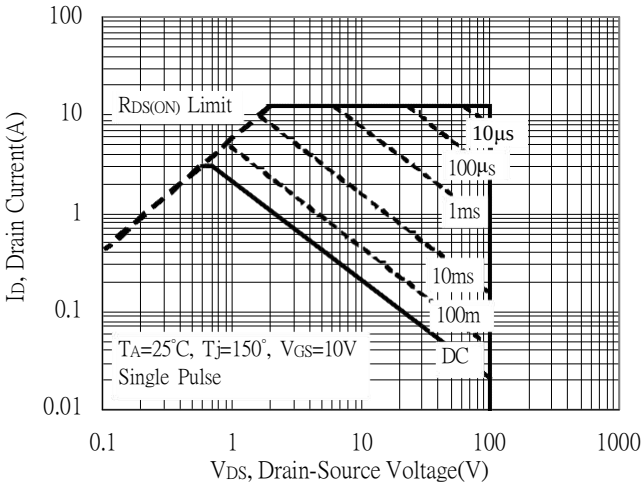
Forward Transfer Admittance vs Drain Current



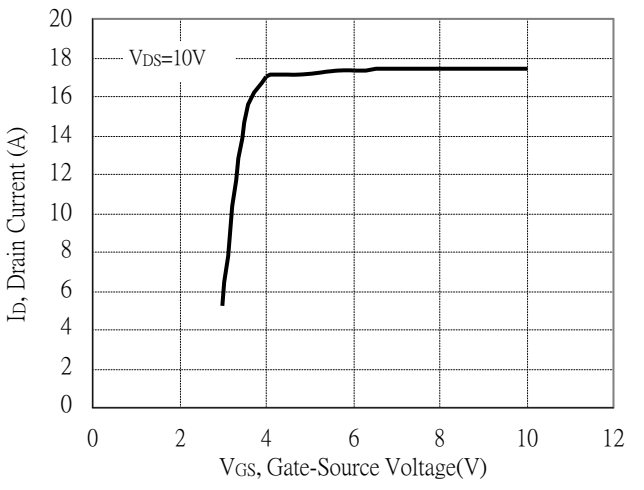
Gate Charge Characteristics



Maximum Safe Operating Area

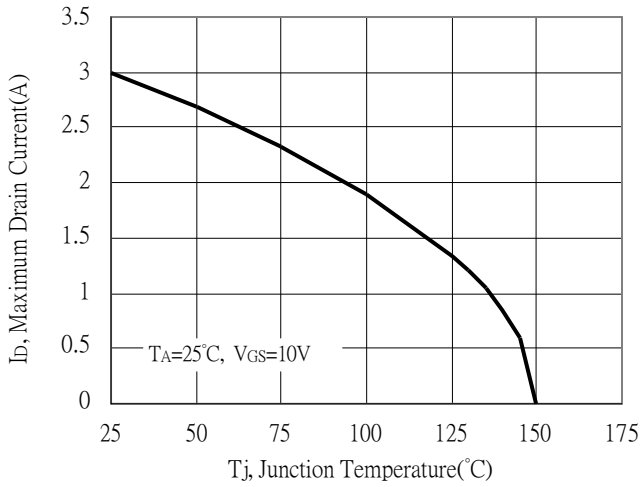


Typical Transfer Characteristics

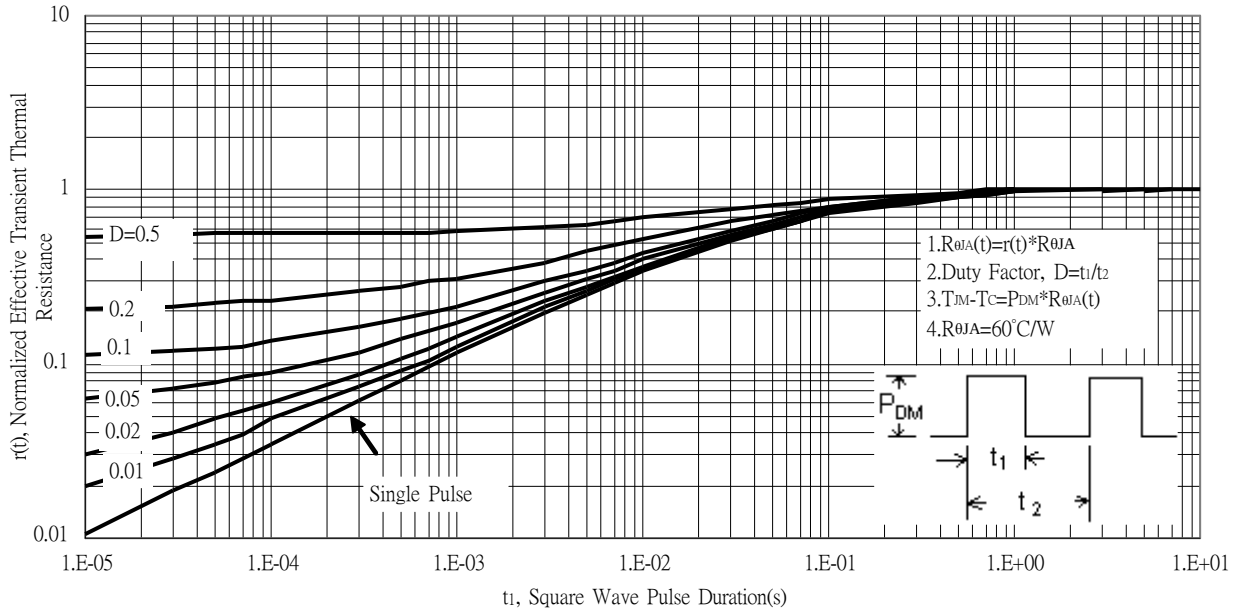


Typical Characteristics(Cont.)

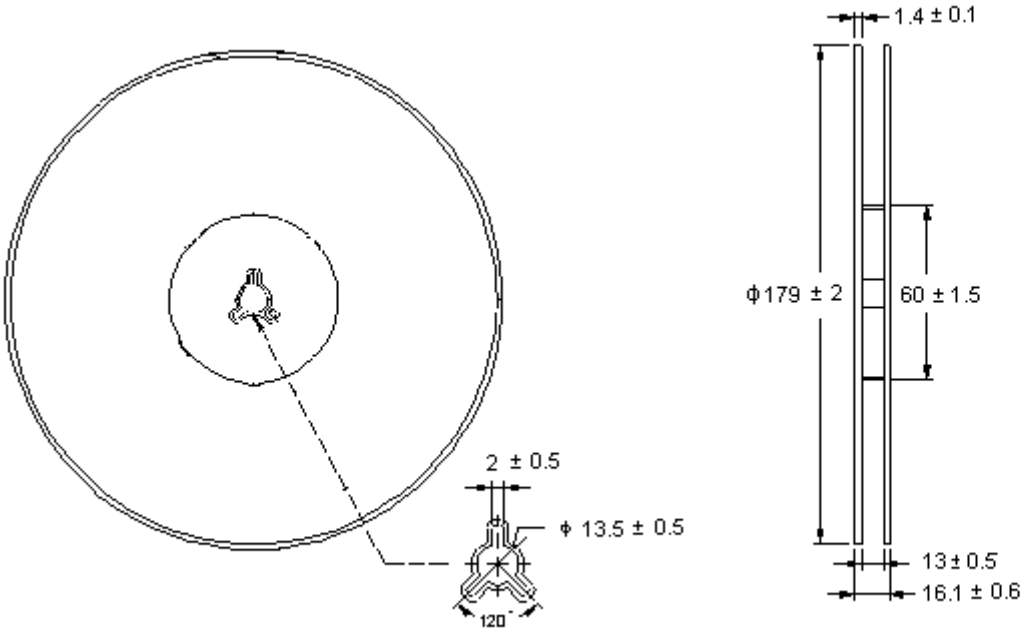
Maximum Drain Current vs Junction Temperature



Transient Thermal Response Curves

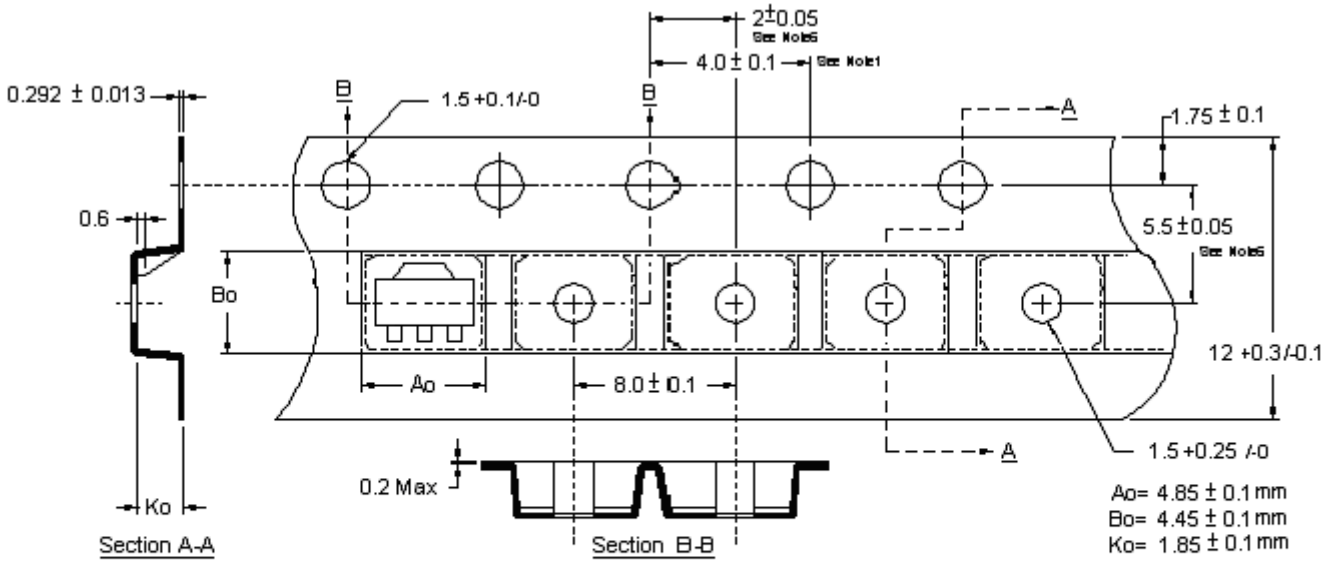


Reel Dimension



Unit: millimeter

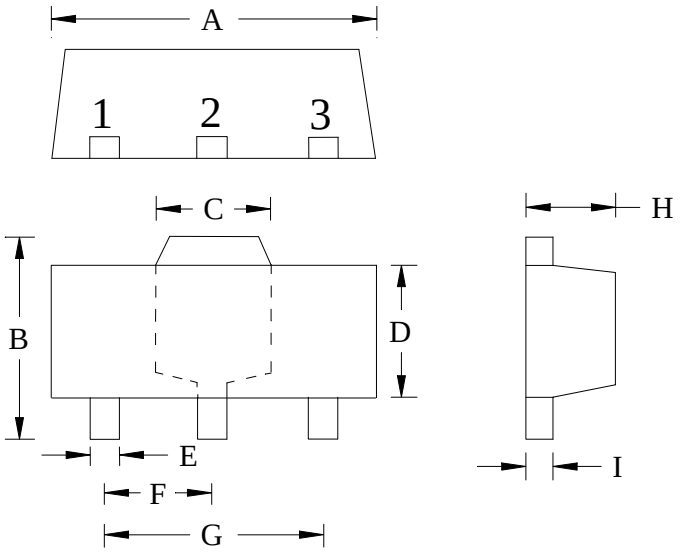
Carrier Tape Dimension



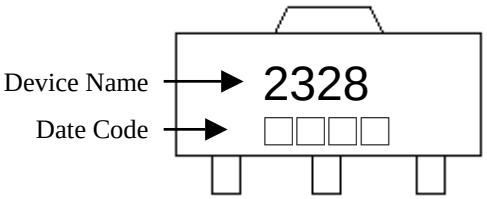
Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

SOT-89 Dimension



Marking:



Style: Pin 1. Gate 2. Drain 3. Source

3-Lead SOT-89 Plastic
Surface Mounted Package
Package Code: M3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0591 TYP		1.50 TYP	
B	0.1551	0.1673	3.94	4.25	G	0.1181 TYP		3.00 TYP	
C	0.0610 REF		1.55 REF		H	0.0551	0.0630	1.40	1.60
D	0.0906	0.1024	2.30	2.60	I	0.0138	0.0173	0.35	0.44
E	0.0126	0.0205	0.32	0.52					